

Arthroscopic Washout Associated with Improved Revision-Free Survival Versus Open Washout for Native Shoulder Septic Arthritis

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Purpose: We aim to analyze health-care utilization, index hospitalization complications, and revision-free survival for patients with native shoulder septic arthritis undergoing open or arthroscopic irrigation and debridement (I&D).

Methods: The National Readmission Database (NRD) was queried from 2016 to 2019 to identify patients using ICD-10 diagnostic and procedure codes. Days to revision I&D were calculated for patients during the index admission or any subsequent readmission. Health-care utilization analysis was performed using multivariate regression. Survival analysis was performed using Kaplan-Meier analysis and Cox proportional hazard regression. Stratified analyses were performed for high-risk patients presenting with sepsis or ECI (Elixhauser Comorbidity Index) of 5 or greater.

Results: A total of 4122 patients were identified. Of these 2781 (67.5%) were arthroscopic and 1341 (32.5%) were open. Median follow-up was 170 days (interquartile range [IQR] 79-265). A total of 350 patients (8.5%) underwent revision I&D at a median of 9 days (IQR, 3-44 days). After adjusting for confounders, arthroscopic I&D was associated with a reduction of hospital costs by \$4,169 ($P < 0.001$), length of stay by 0.74 days ($P = 0.042$), but no difference in non-home discharge. Arthroscopic I&D was associated with lower rate of postoperative blood transfusion (odds ratio [OR] 0.68, $P < 0.001$) and wound complication (OR 0.30, $P < 0.001$). In sepsis and ECI > 5 patients, arthroscopic I&D was associated with lower wound complication rates alone. Revision-free survival after I&D was 97.8% at 3 days, 95.6% at 10 days, 94.1% at 30 days, 92.2% at 90 days, and 91.1% at 180 days. Arthroscopic I&D was associated with increased revision-free survival on multivariate Cox modeling (hazard ratio [HR] 0.68, $P < 0.001$) and in stratified analysis of high medical comorbidity patients (HR 0.53, $P < 0.001$) compared to open I&D. In sepsis patients, reoperation rates were similar for arthroscopic and open washout. Arthroscopic I&D was associated with improved survival for patients 65 years or older (HR 0.52, $P < 0.001$), but not younger than 65 ($P = 0.16$).

Conclusion: In patients with native shoulder septic arthritis, the rate of revision I&D was significantly reduced in patients undergoing arthroscopic versus open I&D. This beneficial effect appears to be most substantial in patients 65 years and older or those with higher levels of medical comorbidity. Arthroscopic I&D was also associated with decreased costs, length of stay, and complications—including blood transfusion and wound complications.